ANNUAL REPORT

TO THE

TECHNICAL COORDINATING COMMITTEE

GULF STATES MARINE FISHERIES COMMISSION

OCTOBER 1, 2014 TO SEPTEMBER 30, 2015

SEAMAP Subcommittee

John Mareska, Chairman

Jeffrey K. Rester

SEAMAP Coordinator

October 26, 2015 **GSMFC No: 246**

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INTRODUCTION

The Southeast Area Monitoring and Assessment Program (SEAMAP) is a State/Federal/University program for collection, management, and dissemination of fishery-independent data and information in the southeastern United States. The program presently consists of three operational components: SEAMAP-Gulf of Mexico, which began in 1981; SEAMAP-South Atlantic, implemented in 1983; and SEAMAP-Caribbean, formed in 1988.

Each SEAMAP component operates independently, planning and conducting surveys and information dissemination in accordance with administrative policies and guidelines of NOAA Fisheries' Southeast Regional Office (SERO).

Federal programmatic funding for SEAMAP activities and administration was appropriated in Federal Fiscal Years 1985-2015 (October 1 through September 30). State and Gulf States Marine Fisheries Commission (GSMFC) funding allocations for FY1985-FY2015 were handled through State/Federal cooperative agreements, administered by SERO and the Southeast Fisheries Science Center (SEFSC), NOAA Fisheries.

In FY2015, SEAMAP operations continued for the thirty-fourth consecutive year. SEAMAP resource surveys included the Fall Plankton Survey, Fall Shrimp/Groundfish Survey, Spring Plankton Survey, Summer Shrimp/Groundfish Survey, Reeffish Survey, Bottom Longline Survey, Vertical Line Survey, and plankton and environmental data surveys. Other FY2015 activities included SEAMAP information services and program management.

This report is the thirty-second in a series of annual SEAMAP Subcommittee reports to the Technical Coordinating Committee (TCC) of the Gulf States Marine Fisheries Commission. It is intended to inform the TCC of SEAMAP-Gulf of Mexico activities and accomplishments during FY2015 and proposed SEAMAP activities for FY2016.

Appreciation is gratefully extended to the staff of the Gulf States Marine Fisheries Commission for their considerable assistance in the preparation of this document.

FY2015 SEAMAP RESOURCE SURVEYS

The surveys conducted during the year address distinct regional needs and priorities and provide information concerning the marine resources in the Gulf of Mexico. Other activities included SEAMAP information services and program management.

Fall Shrimp/Groundfish Survey

The Fall Shrimp/Groundfish Survey was conducted from October 1 to November 26, 2014 from off southwest Florida to the U.S.-Mexican border. Two hundred ninety-one trawl stations were sampled during the survey. Vessels sampled waters out to 60 fm with trawls and plankton nets in addition to environmental sampling. While not funded by SEAMAP, Florida did participate in the

Fall Shrimp/Groundfish Survey and collected data at one hundred thirty-six trawl stations. The objectives of the survey were to:

(1) sample the northern Gulf of Mexico to determine abundance and distribution of demersal organisms from inshore waters to 60 fm;

(2) obtain length-frequency measurements for major finfish and shrimp species to determine population size structures;

(3) collect environmental data to investigate potential relationships between abundance and distribution of organisms and environmental parameters; and

(4) collect ichthyoplankton samples to determine relative abundance and distribution of eggs and larvae of commercially and recreationally important fish species.

NOAA Fisheries, Mississippi, and Louisiana vessels collected ichthyoplankton data at 65 stations with bongo and/or neuston nets at sample sites occurring nearest to half-degree intervals of latitude/longitude. Florida sampled 37 ichthyoplankton stations during the Fall Shrimp/Groundfish Survey. The Polish Sorting and Identification Center will sort the samples. Once sorted, the specimens and data will be archived at the SEAMAP Archiving Center.

Winter Plankton Survey

The SEAMAP Winter Plankton Survey took place from March 3 to April 2, 2015. NOAA Fisheries collected ichthyoplankton samples at 113 SEAMAP stations. The objectives of the survey were to assess the occurrence, abundance and geographical distribution of the early life stages of winter spawning fishes from mid continental shelf to deep Gulf waters; measure the vertical distribution of fish larvae by sampling at discrete depths in the water column using a 1-meter Multiple Opening and Closing Net Environmental Sensing System (MOCNESS); and sample the size fraction of fishes that are underrepresented in bongo and neuston samples using a juvenile (Methot) fish trawl.

Spring Plankton Survey

The SEAMAP Spring Plankton Survey was conducted from May 1 to May 31, 2015. One hundred twenty-five stations were sampled during the survey. This was the thirty-fourth year for the survey and participants included NOAA Fisheries, Louisiana, and Mississippi. The objectives of the survey were to collect ichthyoplankton samples for estimates of the abundance and distribution of Atlantic bluefin tuna larvae and collect environmental data at all ichthyoplankton stations.

Plankton samples were taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61-cm nets with 333-micron mesh. Tows were oblique, surface to near bottom (or 200 m) and back to surface. A mechanical flowmeter is mounted off-center in the mouth of each bongo net to record the volume of water filtered. Volume filtered ranges from approximately 20 to 600 m^3 but is typically 30 to 40 m^3 at the shallowest stations and 300 to 400 m^3 at the deepest stations. A single or double 2x1 m pipe frame neuston net fitted with 0.947 mm

mesh netting is towed at the surface with the frame half-submerged for 10 minutes. Samples are taken upon arrival on station, regardless of time of day. At each station, either a bongo and/or neuston tow are made depending on the specific survey. Preservation protocol called for the right bongo samples to be preserved in 10% formalin and then transferred to fresh 95% ethanol after 36 hours. The original standard SEAMAP method of initial preservation in 10% formalin for 48 hours was changed to 36 hours in order to improve long term storage for genetic analysis. The left bongo and neuston samples are initially preserved in 95% ethanol and then transferred to fresh 95% ethanol after 24 hours. In addition, hydrographic data (surface chlorophylls, salinity, temperature and dissolved oxygen from surface, midwater and near bottom, and Forel-ule color) were collected at all stations.

Right bongo and neuston samples collected from SEAMAP stations were transshipped to the Polish Sorting and Identification Center. Left bongo samples were archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC).

Bottom Longline Survey

This nearshore survey complements an existing long-term fisheries independent survey currently being conducted by NOAA Fisheries, by targeting shark and finfish species within the shallow waters of the Gulf of Mexico. The objectives of the survey are to collect information on shark and finfish abundances and distribution with a 1-mile longline and to collect environmental data.

In an effort to standardize the Bottom Longline Survey as much as possible, the SEAMAP Subcommittee revised the sampling universe and station selection method during this reporting period. The Subcommittee decided to sample during three seasons Spring (April-May), Summer (June-July), and Fall (August-September). Sampling is conducted in waters defined by the 3-10m depth contour. NMFS Statistical Zones are used as guides to ensure effective distribution of sampling effort. Stations are proportionally allocated and randomly distributed within the 3-10m depth contour in each statistical zone based on the proportion of those depths present. Since the 3-10m depth strata is smaller in some statistical zones relative to other statistical zones, each statistical zone is allocated at least two stations during each season in order to ensure adequate sampling coverage. Partners usually survey the stations that occur off their state boundaries for each season.

The Bottom Longline Survey recently completed the first year of using this standardized station selection protocol. Texas, Louisiana, Mississippi, and Alabama all sampled 142 stations from April 9 to October 7, 2015 in waters off their coasts in 3-10m. Florida will use NFWF funding next year to participate in the Bottom Longline Survey during the Fall time period.

Vertical Line Survey

In FY2015, Texas, Louisiana, and Alabama conducted vertical line sampling for reeffish. In Alabama, they sampled 81 stations over artificial reefs and natural hardbottom off their coast from May 7 to September 3, 2015. Vertical lines with ten hooks are baited with Atlantic mackerel and are fished for five minutes. Fish may be retained and processed for age and fecundity. All fish

are sacrificed for otoliths at stations deeper than 60 m. In water depth less than 60 m, stations may be assigned as tag and release or collection sites.

In Louisiana, the sampling frame is subdivided into three sampling blocks based on depth between 89 degrees longitude and 91 degrees longitude, with the water depth ranging from 60 to 360 feet. Each block is sampled quarterly in a rotation. Within these sampling blocks, there is a possibility of randomly selecting 40 different corridors within the block. The actual sites are randomly selected within the corridor boundary and sampled at the chief scientist's discretion. The sites roughly consist of artificial reefs, natural bottom, and petroleum production platforms. Louisiana sampled 109 stations from May 1 to August 22, 2015.

Texas began participating in the Vertical Line Survey this year. Texas sampled 37 stations from August 25 to October 14, 2015.

Reeffish Survey

The primary purpose of this survey was to assess relative abundance and compute population estimates of reeffish found on natural reeffish habitats in the Gulf of Mexico. Video stereo cameras were used during the survey since they enabled the measurement of length frequencies. Each stereo camera contained paired black-and-white video stereo still cameras along with a color mpeg camera in a cylindrical pressure housing. Four of these were mounted in a camera array and were positioned orthogonally with the center of the camera mounted 51 cm above the bottom of the array. A chevron fish trap, that measured 1.76m x 1.52m x 0.61m; 28cm throat diameter; 3.81cm vinyl-clad mesh, was used to capture fish for ageing and other life history studies. Both the fish trap and camera array were baited with squid. The camera array was allowed to soak on the bottom for 30 minutes, and the fish trap soaked for one hour. Florida sampled 618 stations on the west Florida shelf from June 1 to October 2, 2015 while NOAA Fisheries sampled around the Gulf of Mexico in May and August.

Summer Shrimp/Groundfish Survey

The SEAMAP Summer Shrimp/Groundfish Survey was conducted from May 30 to July 18, 2015. Three hundred eighty-five trawl stations were completed in this year's survey. Ninety-nine plankton stations were also sampled during the Summer Shrimp/Groundfish Survey. This was the thirty-fourth year for the survey.

Objectives of the Summer Shrimp/Groundfish Survey were to:

(1) monitor size and distribution of penaeid shrimp during or prior to migration of brown shrimp from bays to the open Gulf;

(2) aid in evaluating the "Texas Closure" management measure of the Gulf Council's Shrimp Fishery Management Plan; and

(3) provide information on shrimp and groundfish stocks across the northern Gulf of Mexico from inshore waters to 60 fm.

Fall Plankton Survey

The Fall Plankton cruise took place from August 24 to September 10, 2015 with NOAA Fisheries, Alabama, and Mississippi all participating. Sixty-nine stations were sampled this year. The objective of this survey was to collect ichthyoplankton samples with bongo and neuston gear for the purpose of estimating abundance and defining the distribution of eggs, larvae, and small juveniles of Gulf of Mexico fishes, particularly king and Spanish mackerel, lutjanids and sciaenids.

Plankton samples were taken with standard SEAMAP bongo and neuston samplers. The bongo sampler consisted of two conical 61-cm nets with 333-micron mesh. Tows were oblique, surface to near bottom (or 200 m) and back to surface. A mechanical flowmeter is mounted off-center in the mouth of each bongo net to record the volume of water filtered. Volume filtered ranges from approximately 20 to 600 m^3 but is typically 30 to 40 m^3 at the shallowest stations and 300 to 400 m^3 at the deepest stations. A single or double 2x1 m pipe frame neuston net fitted with 0.947 mm mesh netting is towed at the surface with the frame half-submerged for 10 minutes. Samples are taken upon arrival on station regardless of time of day. At each station either a bongo and/or neuston tow are made depending on the specific survey. Samples are routinely preserved in 5 to 10% formalin and later transferred after 36 hours to 95% ethanol for long-term storage. During some surveys, selected samples are preserved initially in 95% ethanol and later transferred to fresh ethanol. In addition, hydrographic data (surface chlorophylls, salinity, temperature, and dissolved oxygen from surface, midwater and near bottom, and Forel-ule color) were collected at all stations.

Right bongo and neuston samples collected from SEAMAP stations will be transshipped to the Polish Sorting and Identification Center. Left bongo samples will be archived at the SEAMAP Invertebrate Plankton Archiving Center (SIPAC).

INFORMATION SERVICES

Information from the SEAMAP activities is provided to user groups through the program administration and three complementary systems: the SEAMAP Information System, SEAMAP Archiving Center, and SIPAC. Products resulting from SEAMAP activities can be grouped into two major categories: data sets (including broadly, digital data and collected specimens) managed by the SEAMAP Information System, SEAMAP Archiving Center and SIPAC; and program information. Program information is discussed in the *PROGRAM MANAGEMENT* Section of this report.

SEAMAP Information System

Biological and environmental data from all SEAMAP-Gulf surveys are included in the SEAMAP Information System, managed in conjunction with NOAA Fisheries-SEFSC. Raw data are edited by the collecting agency and verified by the SEAMAP Data Manager prior to entry into the system. Data from all SEAMAP-Gulf surveys during 1982-2014 have been entered into the system and data from the 2015 surveys are in the process of being verified, edited, and entered for storage and

retrieval. Verified, non-confidential SEAMAP data are available conditionally to all requesters, although the highest priority is assigned to SEAMAP participants.

Requested SEAMAP data were used for a multitude of purposes in 2015:

- Evaluating the abundance and size distribution of penaeid shrimp in federal and state waters to assist in determining opening and closing dates for commercial fisheries;
- Evaluating and plotting the size of the hypoxic (Dead Zone) area off of Louisiana;
- Assessing shrimp and groundfish abundance and distribution and their relationship to such environmental parameters as temperature, salinity, and dissolved oxygen;
- Identifying environmental parameters associated with concentrations of larval finfish;
- Assessing the potential impact the Deepwater Horizon oil spill on marine fish stocks; and
- Compiling the 2015 SEAMAP Environmental and Biological Atlas.

Real-time Data

A major function of the SEAMAP Information System is the processing of catch data from the Summer Shrimp/Groundfish Survey as near-real-time data. Data were transmitted weekly to the GSMFC for inclusion. Plots of station locations and catch rates of shrimp, squid and dominant finfish species were prepared, edited, and processed by GSMFC for weekly distribution to management agencies, fishermen, processors and researchers. SEAMAP real-time data plots were produced during the 2015 Summer Shrimp/Groundfish Survey. Seven weekly mailings were produced and distributed to approximately 125 interested individuals. These plots were also available through the SEAMAP web page.

PROGRAM MANAGEMENT

The SEAMAP program is administered by the SEAMAP Subcommittee of the TCC through the SEAMAP Coordinator, who is under the technical direction of the Subcommittee Chairman and administrative supervision of the GSMFC Executive Director.

Personnel associated with SEAMAP program management include the Coordinator, Data Manager, SEAMAP Archiving Center Curator, SIPAC Curator and the Program Monitor from NOAA Fisheries-Pascagoula Laboratory.

Planning

Major SEAMAP-Gulf Subcommittee meetings were held in October 2014 and March 2015 in conjunction with the Annual Meeting of the GSMFC. All meetings included participation by various work group leaders, the Coordinator, the Program Monitor, and other GSMFC staff.

Representatives from the Gulf program also met with the South Atlantic and Caribbean representatives in August 2015 to discuss respective program needs and priorities for FY2016.

Coordination of program surveys and distribution of quick-report summaries of a Gulf-wide survey to management agencies and industry were major functions of SEAMAP management in 2015. Other important management activities included coordinating data provision and specimen loans, preparing publications and documents and assisting in the preparation of State/Federal cooperative agreements, including amendments to permit extension of activities previously not detailed in the agreements.

Information Dissemination

The following documents were published and distributed during this reporting period:

- *SEAMAP Subcommittee Report to the GSMFC Technical Coordinating Committee - October 1, 2013 to September 30, 2014.* A detailed summary of program accomplishments, emphasizing survey design, material collected data dissemination, budget information, and future survey activities.

- *Joint Annual Report of the SEAMAP Program - October 1, 2013 to September 30, 2014*. A summary of FY2014 activities and proposed FY2015 events for the SEAMAP-Gulf, South Atlantic, and Caribbean Programs.

- *SEAMAP Environmental and Biological Atlas of the Gulf of Mexico 2012*. A summary of the 2012 SEAMAP surveys.

- *SEAMAP Environmental and Biological Atlas of the Gulf of Mexico 2013*. A summary of the 2013 SEAMAP surveys.

Proposed 2016 Activities

Preliminary 2016 SEAMAP-Gulf budget allocations are shown in Table 3. Last year, total program allocations for all three SEAMAP components, Gulf, South Atlantic and Caribbean, was approximately $4.38 million. At the August meeting, the SEAMAP components based their allocations for 2016 on level funding. At this level, the share to be allocated for SEAMAP-Gulf activities (including GSMFC) will be $1,808,677. Proposed FY2016 activities for all Gulf participants are shown in Table 4.

FY2015 Financial Report

Total allocations for FY2015 program administration were $221,235. The GSMFC has arranged and paid for all expenses associated with personnel, meetings, travel, and operating expenses to date. The remaining balance will be used to provide administration of the SEAMAP-Gulf program through December 31, 2015.

TABLE 1.

SEAMAP REPRESENTATIVES FOR FY2014

John Mareska, Chairman
Alabama Department of Conservation and Natural Resources

Chloé Dean
Louisiana Department of Wildlife and Fisheries

Read Hendon
University of Southern Mississippi
Gulf Coast Research Laboratory

Ted Switzer
Florida Fish and Wildlife Conservation Commission
Florida Fish and Wildlife Research Institute

Fernando Martinez-Andrade
Texas Parks and Wildlife Department

Butch Pellegrin
NOAA Fisheries
Pascagoula Laboratory

John Froeschke (non-voting)
Gulf of Mexico Fishery Management Council

TABLE 2.

SEAMAP WORK GROUP MEMBERS FOR FY2015

ADULT FINFISH WORK GROUP

Terry Henwood
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FWC/Florida Fish and Wildlife
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Jason Adriance
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John Mareska
ADCNR/Marine Resources Division

Erick Porche
MS Department of Marine Resources

DATA COORDINATING WORK GROUP

Lloyd Kirk, Leader
SEAMAP Data Manager
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Shrimp/Groundfish Work Group

Charles Weber
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Plankton Work Group

Mike Murphy
Florida Fish and Wildlife Conservation
Commission
Red Drum Work Group

John Anderson
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Reeffish Work Group

Michael Harden
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Environmental Data Work Group

ENVIRONMENTAL DATA WORK GROUP

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Jason Herrmann
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Sara LeCroy, Curator
SEAMAP Invertebrate Plankton Archiving Center
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Mark Benfield
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RED DRUM WORK GROUP

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Research Institute

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Miami Laboratory

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SHRIMP/GROUNDFISH WORK GROUP

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LONGLINE WORK GROUP

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VERTICAL LINE WORK GROUP

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Matthew Campbell
NOAA Fisheries
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TABLE 3.

PRELIMINARY 2016 PROGRAMMATIC BUDGET

	FY2015 Funding
GSMFC	$221,235
Alabama	$185,000
Florida	$487,620
Louisiana	$464,393
Mississippi	$326,415
Texas	$124,014
Total	$1,808,677

TABLE 4.

PROPOSED SEAMAP-GULF ACTIVITIES, 2016

	Fall	Winter	Spring	Summer
Resource Surveys:				
Spring Plankton Survey			X	
Shrimp/Groundfish Surveys	X			X
Fall Plankton Survey	X			
Plankton & Environmental Data Surveys	X	X	X	X
Bottom Longline Surveys	X		X	X
Vertical Longline Surveys			X	X
Information Operations:				
Biological and Environmental Atlas				X
Joint Annual Report		X		
Data Input and Request Processing	X	X	X	X
Specimen Archiving and Loan	X	X	X	X
Real-time Data Summaries				X
Program Administration:	X	X	X	X